

Abstract of the Disclosure

2 A nickel/palladium/gold metallization stack is formed upon connection pads of integrated
3 circuits at the wafer level through an electroless plating method. The metallization stack can be
4 formed over copper or aluminum interconnect pads; the lower nickel layer bonds securely to the
5 copper or aluminum interconnect pads, while the intermediate palladium layer serves as a diffusion
6 barrier for preventing the nickel from out-diffusing during subsequent thermal cycles. The upper
7 gold layer adheres to the palladium and readily receives a variety of interconnect elements, including
8 gold bumps, gold wire bonds, solder bumps, and nickel bumps. The electroless plating process
9 permits connection pads to be formed using fine geometries, and allows adjacent connection pads to
10 be formed within 5 micrometers of each other.